



The Road to Recovery - Healthy Living Recommendations to Incorporate into Your Recovery Plans

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Road to Recovery

Wounded, Ill and Injured (WII) Nutrition and Weight Management

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Objectives



- **Communicate the importance of nutrition in managing weight during illness and injury.**
- **Identify the proper education and support needed for maintaining balanced nutrition during illness and injury.**
- **Discuss nutrients that may improve wound healing and affect the reparative process for multiple conditions.**
- **Summarize the importance of nutrition and weight management during illness and injury.**



Introduction



- Nutrition plays an important role for those who have been Wounded, Ill, or Injured.
- It is important to maintain a diet that is energy balanced and nutrient dense during the healing and recovery process.
- Education and support are vital aspects of the healing and recovery processes.



Effects of being Underweight, Overweight, and/or Obese



- Possibly increases the amount of time required for recovery
- Affects how prostheses and/or adaptive clothing fit
- Difficulties arise among persons with amputations to be active
- Increases the risk for infection
- Contributes to poor wound healing
- Slows the return to daily life

Wilson, J.A. and Clark, J.J. (2004). Obesity: Impediment to post surgical wound healing. Advance Skin Wound Care; 17 (8) 426-435 Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/15492679>



WII Weight Management



- What affects body weight?
 - Environment
 - Behaviors
 - Genetics
- The key to weight management is still calorie balance.
- If calories consumed equals calories expended, then body weight is maintained.
- Physical Activity



WII Weight Management (Continued)



- Calories In - Food and beverages
- Calories Out - Physical activity and normal metabolic processes
- More calories and/or decreased activity = Weight gain
- Fewer calories and/or increased activity = Weight loss
- Balancing calories and nutrients over time helps to maintain body weight and one's overall health.



Foods to Consume During Injury and Illness

- Nutrient Dense: Foods rich in vitamins, minerals, phytochemicals, and anti-oxidants within a given number of calories and not “diluted” by added or naturally occurring unhealthy fats and sugar.
 - Typically the deeper the color the higher the nutrient density
- Fresh/Frozen: Nutrient integrity is maintained as well as quality
- Hydration: Water, Decaf teas/coffee, etc.
 - Minimum fluid requirements: Weight divided by 2 for example:
 $170\text{lbs} \div 2 = 85 \text{ oz fluid per day } (\approx 11 \text{ cups})$



Examples of Foods to Consume During Injury and Illness



- Consume a variety of foods to ensure adequate amounts of :
 - Complex carbohydrates (whole grains, high fiber cereal, quinoa, brown rice)
 - Lean protein (select/choice grades of meat, poultry, eggs, seafood, tofu, beans, peas, legumes)
 - Healthy fats (olive/canola oil, avocado, walnuts, almonds, fatty fish – salmon/mackerel)
 - FF/low fat dairy (milk, yogurt, cheese, soy milk)
 - Vitamins (especially Vit. C citrus fruit, kiwi, cantaloupe, strawberries, peppers or tomato juice and Beta Carotene (Vit. A) sweet potatoes, kale, carrots, and a variety of greens)
 - Minerals (especially Zinc, beef/pork, fortified cereals, yogurt)



Benefits of Consuming Nutrient Dense Foods



- Provides significant nutritional properties for healing and resilience without additional calories
- Underweight Individuals: Nutrient and caloric dense foods
 - Accomplished with the addition of healthy fats and multiple meals/snacks throughout the day
- Overweight/obese Individuals: Nutrient dense foods
 - Accomplished with eating nutrient dense foods typically high in fiber and fluids coupled with lean protein sources (contributes to early and sustained satiety)



Healthy Snack Tips



- Recommend:
 - Fresh fruit/vegetables; canned fruit in its own juice
 - Whole grain cereals/bread/pasta/air popped popcorn
 - Water with the juice of a lemon/lime added
 - Fat Free yogurt (Greek style for additional Protein)
 - Part-skim string cheese
 - Lean sliced meats/nut butters (monitor portion size)
- Avoid calorically dense/nutrient deficient foods:
 - Fried foods, cream/cheese sauces, mayo/cream cheese dips
 - Packaged products: Sugar sweetened drinks, chips, cookies, brownies, “Slim” Jims, bologna, low fiber/sugared cereals & granola/snack bars, candy (even fat-free)



Physical Activity Recommendations



Adults ages 18-64 should engage in:

- 150 minutes per week of moderate intensity activities (30 minutes a day, 5 times per week)

OR

- 75 minutes per week of vigorous intensity activities (15 minutes a day, 5 times per week)

- Moderate intensity aerobic activity = Ability to carry on a conversation with an increased heart rate
- Vigorous intensity aerobic activity = Unable to carry on a full conversation (able to state a few words at a time) with an increased heart rate



- Individuals who have a condition or limitation that could increase their risk of injury or compromise recovery should consult their physician before engaging in any physical activity.



Wound Healing Process



- Wound healing is a normal process in the body that is dependent upon proper nutrition and hydration.
- There are four phases of wound healing:
 - Haemostasis (1 day)
 - Inflammation (1-3 days)
 - Proliferation (3-7 days)
 - Remodeling (weeks/months)
- Timely transition from each stage is enhanced with appropriate nutrition and permissible activities.



Nutrients Needed for Wound Healing, Tissue Repair, and Muscle Recovery



- Vitamin A- Wound healing, bone formation, and immune function
- Vitamin B complex (riboflavin, thiamine and pantothenic acid)- Assists in oxygen and nutrient pathways, and energy metabolism
- Vitamin C- Strengthens bones, improves immune function, and aides in tissue repairs
- Vitamin K- Stops bleeding and promotes clotting

MacKay. D and Miller, A.L. Nutritional support for wound healing. 2003, Nov; Alternative Medicine Review.8 (4):359-377. <http://www.ncbi.nlm.nih.gov/pubmed/14653765>



Nutrients Needed for Wound Healing, Tissue Repair, and Muscle Recovery (Continued)



- Copper- Forms collagen which is essential to wound healing and strengthening of connective tissue
- Zinc- Assists in cell division, protein synthesis and inhibits bacterial growth by enhancing the immune response
- Protein- Supports wound healing (cell proliferation), improves immunity, and assists in maintaining intracellular hydration
- Water- Maintains body homeostasis; transports nutrients/oxygen and removes waste products
- CHO's/Fat – Protein sparing calories that promote healing/recovery plus provision of necessary vitamins/minerals

*NOTE: Do not supplement unless PCM prescribed: ↑ Zinc = ↓ Copper; ↑ Vit. A = Toxicity (beta carotene form does not);
↑ Vit. E/Omega 3/Garlic = Decreases wound healing



Nutrition and Psychological Well-being



- There is a direct link between nutrition and psychological health.
- Neurotransmitters in the brain need proper nutrients in order to function properly (Vit. B12; Primary source – meat/dairy; Vegans require supplementation)
- Poor nutrition has been linked to conditions such as insomnia, stress, depression, and anxiety.

Bender J. Good nutrition matters, let me tell you why. Defense Center of Excellence. February 28, 2012.
http://www.dcoe.health.mil/blog/12-02-28/Frontline_Psych_with_Doc_Bender_Good_Nutrition_Matters_Let_Me_Tell_You_Why.aspx. Accessed 11 January, 2013.



Nutrition and Post Traumatic Stress Disorder



- The body needs all of the essential building blocks to work sufficiently.
- Vitamins A,B,C,K; minerals and Omega 3 fatty acids improve blood flow to the brain and support focus/thought clarity.
- Antioxidants fight inflammation (kale, spinach, romaine lettuce, carrots, red cabbage, colored peppers, berries, oranges, and peaches).



Nutrition and Post Traumatic Stress Disorder



- Eliminate saturated and trans fats and replace with monounsaturated and polyunsaturated fats.
- Avoid refined foods such as pastas, white breads, and sugars.
- Eliminate potential food allergens, preservatives, and food additives.
- Avoid coffee and other stimulants, such as alcohol and tobacco.
- Consume less red meat and eat more lean meats/protein such as chicken, fish (especially fatty types of fish that contain Omega 3 Fatty Acids), beans, and soy based proteins.

University of Maryland Medical Center. Post Traumatic Stress Disorder.

<http://www.umm.edu/altmed/articles/potraumatic-stres000130.htm>. 2011. Accessed 16 January, 2013.



Nutrition and Traumatic Brain Injury (TBI)



- Clients with Mild Traumatic Brain Injuries (MTBI) can increase Omega 3 fatty acids to balance out the fat consumed within their diet.
- Omega 3 fatty acids, such as fish oil, protects the immune and nervous systems (TBI and PTSD).
- Sources of Omega 3 Fatty Acids: Seafood (Salmon, Mackerel), walnuts, flax seed (oil), soy beans, and fish oil supplements (EPA/DHA).



General Recommendations



- Make half of your plate a “to-go” serving when eating out (familiarize yourself with the ChooseMyPlate model).
- Consume healthy fats (↓ Overweight/ ↑ Underweight).
- Be aware of mindless eating (select portion controlled items prior to watching television or other activities while eating).
- Limit appetizers, desserts, free beverage refills.
- Reduce beverages containing added sugar.
- Limit Alcohol.



ChooseMyPlate Guidance



- Make $\frac{1}{2}$ of your plate fruit and vegetables
- Make $\frac{1}{4}$ of your plate lean protein
- Make $\frac{1}{4}$ of your plate grains (make half of these whole grain)
- Low-fat dairy and fat-free milk products
- Oils (provide important nutrients such as Vitamins A, D, E & K)



Recipe- Salmon Fillets



Ingredients:

- 1 1/2 pounds salmon fillets
- lemon pepper to taste
- garlic powder to taste
- 1/3 cup low sodium soy sauce
- 1/3 cup stevia
- 1/3 cup water
- 2 Tbsp olive oil



Directions:

1. Mix last 6 ingredients together and marinate fish in a dish.
2. Cover or seal the dish. Chill for approximately 20 minutes in the refrigerator.
3. Remove dish with the fish from refrigerator and uncover.
4. Flip the fish over several times to marinate the fish completely.
5. Pour the remaining marinade/sauce into a cooking pan.
6. Bring the marinade/sauce to a boil.
7. Add fish to the boiling sauce and reduce to low heat.
8. Cook salmon for 6 to 8 minutes per side, or until the fish flakes easily with a fork.





Road to Recovery

Wounded, Ill and Injured (WII) Active Living

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Objectives



- **State the importance of active living during recovery from an illness or injury.**
- **Identify concerns or barriers to an active lifestyle specific to the WII population.**
- **Discuss various forms of physical activity that may be appropriate for WII members.**



Importance of Active Living During Recovery



- Active living while ill or injured can assist a member:
 - Achieve success
 - Develop physical skills, confidence and coping strategies
 - Connect with family and friends
 - Work towards their optimal level of fitness
 - Promote healing in acute injuries
 - Increasing blood flow to the injury aids in the healing process
 - Keeping the joints limber helps avoid scar tissue formation



Barriers to an Active Lifestyle Among WII Members



- Physical activity limitations (actual and perceived)
- Physical pain
- Feelings of fatigue
- Anxiety, anger or frustration that they cannot participate in the activities they used to, or that they cannot participate at the same level



Barriers to an Active Lifestyle Among WII Members



A Wounded Warrior Project Survey found:

- A perception of limited capability
 - 56.7% said “their health limits them a lot regarding vigorous activities”
 - More than 40% state “they are limited a little for three types of activities”:
 - Moderate activities
 - Bending, kneeling, or stooping
 - Lifting or carrying groceries



Barriers to an Active Lifestyle Among WII Members



Wounded Warrior Project Survey results (cont):

- Post-injury activity levels are low
 - More than half (56.2%) said they do moderate-intensity physical activity or exercise less than 3 days a week, including 36.7% who do so less than once a week
 - The average BMI index is 29.5 and about 42% have a BMI in the obese range (score of 30.0 or higher)

Franklin, M., Hintze, W., Hornbostel, M., et al. 2012 Wounded Warrior Project Survey.
https://www.woundedwarriorproject.org/media/348538/2012_wwp_survey_report_public_6-29_12.pdf.
Published June 29, 2012. Accessed February 22, 2013.



Understanding Physical Capabilities



- Has their healthcare provider restricted their activity?
- Is the individual attending physical therapy? Has the physical therapist made recommendations?
- Are they experiencing pain? What makes the pain better? What makes the pain worse?
- How long can they engage in physical activity before they fatigue?



Breaking Down Barriers



- Understand how they view physical activity
 - What was their baseline level of physical activity?
 - How does the individual perceive their capability?
 - What are their current fitness goals?
 - As health educators, we strive to assist people reach their optimum level of fitness. This varies greatly from person to person.



Potential Forms of Physical Activity for WII Members



Remind the individual that there are many ways to be active

- Swimming or aquatics classes
- Bicycling (hand cycling if a lower extremity injury present)
- Strength training
 - Can focus on upper or lower body strength depending on injury
- Yoga or Tai Chi
- Adaptive sports
- Walking
- Chair exercises



Tips for WII Members



- You may re-injure yourself.
 - Do not attempt to start where you left off-you will simply reinjure yourself or create a new injury
 - The Navy Operational Fitness and Fueling Series (NOFFS):
 - Eliminates the guesswork from creating an individualized fitness program
 - Can be tailored to all fitness levels
 - Focuses on functional movements and injury prevention
 - Can be done with minimal or no equipment
 - Is available as an iPhone app



Tips for WII Members



- Listen to your body
 - Talk to your healthcare provider about “red flag” pain
 - Pain intensity or location indicating they need to stop that activity or movement
 - They may have to work through some pain and discomfort but it is important to not exacerbate the injury
- Speak with others who have had similar experiences
 - Navy Safe Harbor and USMC Wounded Warrior Regiments offer non-medical support to all injured service members - not just combat wounded



Resources



- VA Adaptive Sports Program
 - <http://www.va.gov/adaptivesports/>
- Wounded Warrior Project
 - <http://www.woundedwarriorproject.org/>
- Military One Source
 - <http://www.militaryonesource.mil/>
 - Provide health and wellness coaching via phone or internet as well as counseling
- Navy Safe Harbor
 - <http://safeharbor.navylive.dodlive.mil/>
- USMC Wounded Warrior Regiment
 - <http://www.woundedwarriorregiment.org/>
- NOFFS
 - <http://www.navyfitness.org/fitness/noffs/>
- Balboa Warrior Athlete Program
 - <http://www.med.navy.mil/sites/nmcscd/Patients/Pages/BWAP.aspx>





Road to Recovery

Wounded Ill and Injured (WII) Tobacco

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Objectives



- **Discuss the effects of tobacco use on healing/recovery**
- **Identify traditional and non-traditional tobacco products**
- **Discuss ways to assist the tobacco user**



Tobacco Use is Harmful



- Tobacco use (smoked or chewed) is implicated with psychological health and physical health problems.
- Tobacco use is harmful to those around it.
- Tobacco use is especially harmful to those who are suffering from other disease, illness or recovering from an injury.



Tobacco Use and Recovery



- Negative Affects:
 - Vision problems
 - Delay in wound healing (of injured, surgical and burn patients)
 - Heart Problems
 - Respiratory Problems/COPD
 - Arthritis/Gout
 - Bone diseases/Osteoporosis



Impact on Healing and Health



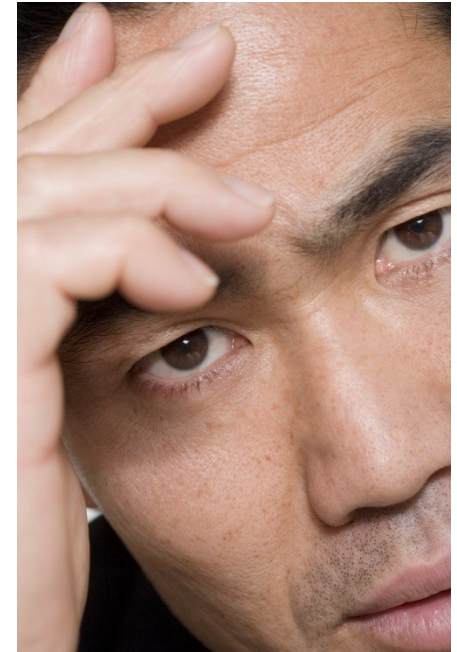
- Tobacco Use:
 - Leads to increased scarring
 - Prolongs the healing process
- Tobacco users who become ill are more likely to experience:
 - Increased hospital admissions
 - Longer hospital stays
 - Serious illnesses
 - Increased loss of duty days



Psychological Health and Tobacco



- Tobacco is used at an increased rate by those experiencing psychological health problems
- Intensifies symptoms of:
 - Depression
 - Anxiety
 - Stress (stress related illnesses)
 - Substance Abuse
- **Linked to problems with PTSD**



Behavioral Health and Tobacco Fact Sheet. Healthy Maine Partnership. Maine Center for Disease Control and Prevention. 2008.



Benefits of Cessation



- Quitting tobacco improves:
 - Night vision
 - Mental Activity
 - Lung Capacity
 - Ability to manage stress
 - Dental hygiene
 - Blood pressure
 - Healing



Identifying Tobacco Users



- Listen
- 5 A's: Ask, Advise, Assess, Assist and Arrange
- Ask:
 - Do you use tobacco?
 - What type of tobacco products do you use?
- Common Mistakes:
 - Do you smoke?
 - Do you use cigarettes?
 - Not asking at all.



Traditional Products and Non-traditional Products



- Smoking Tobacco
 - Cigarettes and Cigars
 - Pipes and Hookahs
 - Bidis/kreteks
 - Self-rolled products
- Smokeless Tobacco
 - Chewing tobacco
 - Snuff
 - Snus
- Dissolvable Products
 - Strips/sticks/ orbs
- Tobacco Gels
 - Hand gels
 - Humidifiers
- E-Products
 - Cigarettes
 - Pipes



Assistance



- Provide reliable information
- Have resources ready and available
- Support efforts to quit and remain tobacco free
- Referrals:
 - Primary Care Manager
 - Health promotion
 - Local Medical clinic/hospital



Online Resources and Programs



- U Can Quit 2
- Smoke Free
- Be Tobacco Free
- Become Anex
- Freedom From Smoking
- NMCPHC Tobacco Page



Quit-lines



- Tricare Quit-lines:
 - North Region: 866-459-8766
 - South Region: 877-414-9949
 - West Region: 866-244-6870
- Veterans:
 - 877-222-8387
- National free Quit-line:
 - 1-800-Quit-Now
- National Cancer Institute
 - 1-877-44U-QUIT



Summary



- We have discussed:
 - Effects of tobacco use on healing/recovery
 - Traditional and non-traditional tobacco products
 - Ways to assist others

